

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 4-11, 13, and 15- 24 are presently active; Claims 1-3 were previously canceled without prejudice; Claims 12 and 14 having been presently canceled without prejudice; Claims 22-24 have been presently added; and Claims 4, 6, and 9 have been presently amended. The amendments to claims are supported from page 15, line 24 to page 16, line 6, by page 21, lines 23-25 and page 22, lines 3-5 of the specification. No new matter has been added.

In the outstanding Office Action, Claims 4, 6-8, 14,15, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arami et al (U.S. Pat. No. 5,904,872) in view of Toya et al (U.S. Pat. No. 6,407,371). Claims 4, 6-15, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arami et al (U.S. Pat. No. 5,904,872) in view of Saito et al (U.S. Pat. No. 6,369,361). Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Arami et al and Toya et al and further in view of Goela et al (U.S. Pat. No. 5,612,132). Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Arami et al and Toya et al and further in view of Takahashi et al (U.S. Pat. No. 6,254,687). Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Arami et al and Toya et al and further in view of Tay et al (U.S. Pat. Appl. Publ. No. 2003/0094446). Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito et al and Arami et al and further in view of Tay et al.

Claim 4 presently recites:

4. A mounting table, comprising:
 - a heating unit including a reflector plate made of an opaque quartz,
 - and a quartz tube welded to a surface of the reflector plate,
 - a mounting table cover member installed to cover the reflector plate, a
 - target object being mounted thereon,

wherein the mounting table cover member is made of a light absorbing material, and a carbon wire which generates heat when a current is applied thereto is disposed between the reflector plate and the mounting table cover member,

wherein the mounting table cover member has a circular lid shape and an inner surface of a sidewall of the mounting table cover member has a diameter greater than a diameter of the reflector plate so that the inner surface of the sidewall of the mounting table cover member is in contact with a side surface of the reflector plate to be circumscribed thereto.

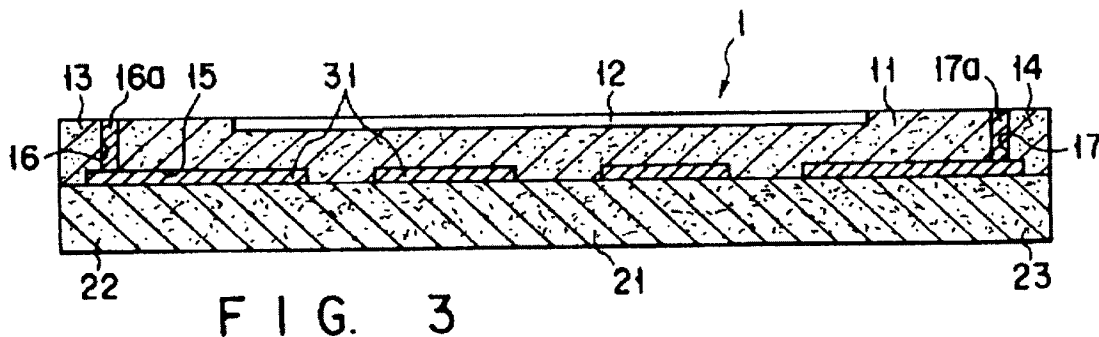
Thus, Claim 4 defines a mounting table cover member 1) which is made of a light absorbing material, and 2) which has a circular lid shape. Further, Claim 4 defines a carbon wire disposed between a reflector plate and the mounting table cover member and defines that an inner surface of a sidewall of the mounting table cover member has a diameter greater than a diameter of the reflector plate so that the inner surface of the sidewall of the mounting table cover member is in contact with a side surface of the reflector plate to be circumscribed thereto. Applicant submits that these features are not disclosed or suggested in the applied art.

Arami et al describe a heating plate 11, which the Office Action associates with the claimed mounting table cover member in Claims 4 and 6. The examiner will appreciate that the heating plate 11 of Arami et al is formed of transparent silica. See column 4 lines 41-42. Arami et al's description of their heating plate being formed of transparent silica does **not** disclose and indeed teaches away from the claimed mounting table cover member being made of a light absorbing material.

Further, the Office Action associates the reflecting plate 21 of Arami et al with the claimed reflecting plate made of an opaque quartz. As illustrated in Fig. 3 of Arami et al (reproduced below for the sake of convenience), the diameters of the reflecting plate 21 and the heating plate in Arami et al are same. As noted above, Claim 4 defines that an inner surface of a sidewall of the mounting table cover member has a diameter greater than a diameter of the reflector plate so that the inner surface of the sidewall of the mounting table

cover member is in contact with a side surface of the reflector plate to be circumscribed thereto. Thus, Arami et al does not disclose or suggest this feature.

FIGURE 3



Indeed, the reflecting plate 21 of Arami et al is designed to reflect radiant heat from the heating element 31 *airtightly sealed* when the reflecting plate 21 is joined to *the heating plate 11*. See col. 4, lines 55-62. In other words, the reflecting plate 21 contacts the heating plate 11 to seal the two members together not only at the circumscribed portion but also at an inner portion. It is only in the space where the heating elements 31 are located thereby that there is no contact or sealing between the reflecting plate 21 and the heating plate 11.

Accordingly, there is no need to seal the space where the carbon wires are located because the carbon wires therein have been already sealed. Thus, there is no motivation or rationale in Arami et al for one to reduce the diameter of the reflector plate 21. Indeed, a substantial reduction would expose the regions around the heating elements 31, where there is no seal and make the construction of Arami et al unworkable.

The deficiencies in Arami et al are not overcome by Toya et al applied in the Office Action for an asserted teaching of a quartz tube welded to a surface of a reflector plate, or Saito et al also applied in the Office Action for an asserted teaching of a quartz tube welded to a surface of a reflector plate.

M.P.E.P. § 2143.03 requires that all words in a claim must be considered in judging the patentability of the claim against the prior art. M.P.E.P. § 2123 I states that a reference may be relied on for all it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments.

Thus, the 35 U.S.C. § 103(a) rejection to independent Claims 4 and 6 (based on the deficiencies pointed out above) should be removed.

Regarding independent Claim 9, Claim 9 recites:

9. A heat treatment apparatus, comprising:
a mounting table on which a target object is mounted;
a processing chamber accommodating therein the mounting table;
a gas supply unit for supplying a gas in the processing chamber;
a vacuum pumping system for evacuating the inside of the processing chamber;
a target object heating unit for heating the target object;
an inner vessel installed in the processing chamber;
a heating unit, installed between the inner vessel and an inner wall of the processing chamber, for heating the inner vessel,
wherein the ***lid-shaped inner vessel is made of a light absorbing material,*** and
the heating unit includes a reflector plate made of an opaque quartz, and a quartz tube welded to a surface of the reflector plate, and a carbon wire which generates heat when a current is applied thereto is disposed on a side of the reflector plate toward a position for the target object. [Emphasis added.]

Although the Office Action associates Saito et al's reaction tube 1 with the claimed inner vessel ***made of a light absorbing material***, the reaction tube 1 of Saito et al is only described as being made of quartz. Saito et al do not describe that their reaction tube is made of opaque quartz. Further, the inner vessel of amended Claim 9 is lid-shaped.

These features are not disclosed or suggested in Saito et al,

Newly added dependent Claim 22 defines that the inner vessel is installed to cover a process space on the mounting table, the inner vessel being adapted to be heated to thereby accelerate process reactions and to align a gas flow of the processing gas.

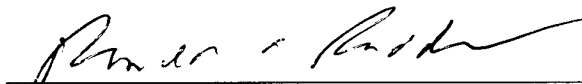
Saito et al do not describe how gas supplied into the inner tube 1 flows but rather only describes a supply of a process gas into inner tube 1 through the gas supply pipe 24. For these deficiencies in the art and the dependence of Claim 22 on an allowable independent claim, Claim 22 should also be passed to allowance.

Newly added dependent Claims 23 and 24 define that an inner surface of a sidewall of a mounting table cover member has a diameter slightly greater than that of the reflector plate so that the inner surface of the mounting table cover member is in close contact with a side surface of the reflector plate to be circumscribed thereto. For similar reasons given above in the discussion of Figure 3 of Saito et al, Saito et al do not disclose or suggest a mounting table cover member has a diameter slightly greater than that of the reflector plate. For these deficiencies in the art and the dependence of Claims 23 and 24 on an allowable independent claim, Claims 23 and 24 should also be passed to allowance.

Consequently, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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